UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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ART UNIT	PAPER NUMBER
2123	

NOTIFICATION DATE	DELIVERY MODE
06/25/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☒ Claim(s) *4 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *   c)☐ None of:

    1.☒ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date *09/06/06*.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-11 are pending.

Claim Objections

2.   (Claim 4 Line 2) objected to because of the following informalities: The term "a validation environment" would be better if written as "the validation environment" in order to clearly indicate that it is referring to the previously mentioned "validation environment" (see Claim 1 Line 1). Appropriate correction is required.

3.   (Claim 4 Line 2) objected to because of the following informalities: The term "at the same time comprises" might create confusion when interpreting the claim. It appears to be better if this term is deleted. Appropriate correction is required.

4.   (Claim 11 Line 2-3) objected to because of the following informalities: The term "and embedded electrical system" appears to be "an embedded electrical system".

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.   Claims 1-11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

More specifically:

a.   Claim 1 recites the limitation "the allowed sequencing of said user

requests and system responses" in Line 6. There is insufficient antecedent basis

for this limitation in the claim.

b.   Claim 1 recites the limitation "the dataflow" in Lines 11-12. There is

insufficient antecedent basis for this limitation in the claim.

c.   Claim 2 recites the limitations "a function implementing it" and "one or

more functions implementing it" in Lines 2 and 3. It is unclear what the term "it" is

referring to. It would be better if the term "it" is replaced with what it is

representing.

d.   Claim 3 recites the limitation "the functions implementing the service" in

Line 3. There is insufficient antecedent basis for this limitation in the claim.

e.   Claim 3 recites the limitation "said skeleton input" and "said skeleton

output" in Line 4. There is insufficient antecedent basis for these limitations in

the claim.

f.   Claim 7 recites the limitation "all replicated objects" in Line 2. There is

insufficient antecedent basis for this limitation in the claim.

g.   Claim 8 recites the limitation "said validation environments" in Line 3. It is

unclear whether this limitation includes the "validation environment" mentioned in

Claim 1 Line 1.

h.   Claim 8 recites the limitation "said service" in Line 3. It is ambiguous

whether this limitation is referring to one of "several services" mentioned in Claim

8 Line 2 or if it is referring to the "service" mentioned in Claim 1 Line 1.

i.   Claim 8 recites the limitation "the set of said services" in Line 4. There is

insufficient antecedent basis for this limitation in the claim.

j.   Claim 11 recites the limitation "being arranged in use" in Line 2. It is

unclear what this limitation is intended to mean in context with the claim

language.

k.   Regarding Claim 11 please note that a single claim which claims both an

apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C.

112, second paragraph.

Claim Rejections - 35 USC § 101

7.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or
>
> composition of matter, or any new and useful improvement thereof, may obtain a patent
>
> therefor, subject to the conditions and requirements of this title.

8.   Claim 9 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. Claim 9 is directed towards a program code

means. This program code means is being interpreted as program blocks or sections

and therefore the claim is directed to "software per se". Although the claim recites the

term "when said program is run on a computer", the claim does not indicate that the

program is stored on a computer readable medium. The claimed invention taken as

a whole is directed to a mere program's description, therefore interpreted as descriptive

material per se and hence nonstatutory.

9.   Claim 11 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. Claim 11 is directed towards a design tool.

This design tool is being interpreted as a software tool utilized to implement the method

of claim 1. The claimed invention taken as a whole is directed to a mere program's

description, therefore interpreted as descriptive material per se and hence nonstatutory.

The claim does not indicate that the program is stored on a computer readable medium.

Furthermore, as support for this interpretation please see Page 1, Paragraph 2 of the

section labeled "Background of the Invention" of the Instant Application where it

indicates that a design tool could be an executable tool.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11.   Claims 1-6 and 8-11 are rejected under 35 U.S.C. 102 (b) as being anticipated by

Kita et al. U.S. Patent No. 5,394,347 (hereinafter Kita).

　　　　a.   **Regarding claim 1 and 9-11**, Kita discloses a method of designing a

validation environment for a service implemented by an embedded electrical

system (Abstract; C1 L7-10), the method including:

a) assigning to said service one or more user requests (C6 L11 - - see the

events) and system responses thereto (C6 L6 - - see the transitions associated

with events);

b) assigning to said service a behavioral automata, said behavioral automata

fixing the allowed sequencing of said user requests and system responses

(Abstract and C5 L64 - - see the EFSM);

c) generating automatically a skeleton validation environment for said service

(C29 L18-30 - - see that the program shell places the path file), in the form of a

program executable on a simulation tool (C29 L18-30 - - see the direct execution

in the C language), said skeleton validation environment comprising a testing

automata (Abstract L17-21- - see the test program ... to be tested and testing its

functions as represented by the transition taken) produced from a traversal of

said behavioral automata (Abstract L21- - see traversing the EFSM), a model of

initial conditions (C22 L55-56 - - see the declare and initialize variables), models

of user requests (C6 L11 - - see the events), models of system response

accuracy (C6 L6 - - see the transitions), an environmental model and the

dataflow and control flow assembling these models together (this limiation is

implied by the definition of the EFSM), said skeleton validation environment

covering all user requests (C16 L26-29) and resultant system responses of said

service (C30 L11-19), and

d) recording said skeleton validation environment in a computer readable

memory device for use by a design validation tool (C17 L49-51). Furthermore,

regarding claim 11 please note that the term "a design tool for adapted for the

validation of a system design" is ..... And the term "said design tool being

arranged in use to output a validation environment for an embedded electrical

system" is ......

b.   **Regarding claim 2**, Kita discloses assigning to each user request a

function implementing it and assigning to each system response one or more

functions implementing it, a dataflow of said skeleton validation environment

being built using said functions of user request and system response (C16 L26-

38, C29 L64-68 and C30 L1-11 - - see the function Force; C30 L11 - - see

verifying/ringing "Bell1"; see the assignment of functions implementing the

requests and responses of the model and calling said functions by the verification

model. The body of said functions has to be implemented by the user).

c.   **Regarding claim 3**, Kita discloses assigning to said service a blackbox

interface, whose input and output correspond to the input and output of at least

one of the functions implementing the service, and interfacing the output of said

service black box with said skeleton input and said skeleton output with the input

of said service black box and completing and correcting skeleton and service

specification in a simulation environment to yield a validation result (C29 L64-68 -

- see the function Force; C30 L11 - - see verifying/ringing "Bell1"; see the

assignment of functions implementing the requests and responses of the model

and calling said functions by the verification model. Please note that the term

"black box" is implicitly disclosed by the Kita reference because the Kita

reference discloses input/output models and behavioral models and analyzing

the outputs of these models in response to selected inputs and execution

conditions, in order evaluate the compliance of a system/component.)

d.   **Regarding claim 4**, Kita discloses including outputting a validated model

which comprises a validation environment for said service and at the same time

comprises a validated model of the service (C10 L51-59 - - see the compiled model).

e.   **Regarding claim 5**, Kita discloses substituting a model of the service with its software implementation (C4 L30-34).

f.   **Regarding claim 6**, Kita discloses substituting a model of the service with its software and hardware implementation and embedding said validation environment on a testing platform interfaced with said hardware implementation (C4 L30-34).

g.   **Regarding claim 8**, Kita discloses assigning a validation environment for several services sharing at least one user request and mixing said validation environments of said service to yield a validation environment for the set of said services (Fig 5 - - see "RingBell1" and "Ring Bell2".

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14.   Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kita et

al. U.S. Patent No. 5,394,347 (hereinafter Kita) in view of Giusto, Paolo et al.,

"Automotive Virtual Integration Platforms: Why's, What's, and How's", IEEE 2002

(hereinafter Giusto).

        a.   **Regarding claim 7**, Kita teaches all the limitations of the base claims as

outlined above.

        But Kita fails to clearly specify a systematic injection of faults for all

replicated objects in a fault tolerant system, such as a brake-by-wire system in a

vehicle.

        However, Giusto teaches a systematic injection of faults for all replicated

objects in a fault tolerant system, such as a brake-by-wire system in a vehicle

(see sectioned labeled "Introduction", 3rd Paragraph).

        Kita and Giusto are analogous art because they are from the same field of

endeavor. They both relate to system integration analysis and design

environments for simulations.

        Therefore at time the invention was made, it would have been obvious to a

person of ordinary skill in the art to modify the above teachings taught by Kita

and combining them with the teachings taught by Giusto.

        One of ordinary skill in the art would have been motivated to do this

modification in order to prove system safety and robustness to faults, as early as

possible in a development process as suggested by Giusto (see for example the
section labeled "Conclusion").

Conclusion

15.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-
272-3766. The examiner can normally be reached on Mon-Fri 10:00 am- 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number
for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
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USPTO Customer Service Representative or access to the automated information
system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

                                                      Carlos Ortiz-Rodriguez
                                                      Patent Examiner
                                                      Art Unit 2123

June 23, 2009

/Kidest Bahta/
Primary Examiner, Art Unit 2123